In the Claims

1. (Previously Presented) A CT detector comprising:

a scintillator array having a plurality of scintillators;

a reflector interstitially disposed between at least two adjacent scintillators, the reflector including a light absorption element disposed between a pair of reflective elements; and

a reflective layer coated to a top face of the scintillator array.

2. (Canceled)

3. (Original) The CT detector of claim 1 wherein the light absorption element is configured to reduce optical cross-talk between the at least two adjacent scintillators.

4. (Original) The CT detector of claim 3 wherein the light absorption element is configured to substantially eliminate optical cross-talk between the at least two adjacent scintillators.

5-12. (Canceled)

13. (Original) The CT detector of claim 1 incorporated into a CT imaging system.

14. (Original) The CT detector of claim 13 wherein the CT imaging system is configured to acquire radiographic data of a medical patient.

15. (Previously Presented) A CT system comprising:

a rotatable gantry having a bore centrally disposed therein;

a table movable fore and aft through the bore and configured to position a subject for CT data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject; and

a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject, the detector array including:

a scintillator array configured to illuminate upon reception of radiographic energy;

a reflector assembly disposed between adjacent scintillators of the scintillator array; and

wherein each reflector assembly includes a composite layer sandwiched between at least a pair of reflective layers; and

wherein the composite layer includes a high-Z metal and a low-viscosity polymer.

16. (Canceled)

17. (Previously Presented) The CT system of claim 15 wherein the high Z-metal includes one of tungsten and tantalum.

18. (Previously Presented) The CT system of claim 15 wherein the low-viscosity polymer has a non-translucent color.

19. (Original) The CT system of claim 15 wherein the at least a pair of reflective layers includes TiO_2.

20. (Original) The CT system of claim 15 wherein each reflective layer has a lateral thickness of approximately 15-90 μm and the composite layer has a lateral thickness of approximately 50-100 μm.

21. (Original) The CT system of claim 15 wherein the reflector assembly is cast between adjacent scintillators.

22. (Previously Presented) A method of CT detector manufacturing comprising the steps of:

providing a scintillator array of a plurality of scintillators, wherein the step of providing a scintillator array includes the step of forming a substrate of scintillation material;

disposing a reflective layer between adjacent scintillators;

disposing a reflective layer directly on an x-ray receptor surface of the scintillator array; and

disposing a light absorbing composite layer between the reflective layers that are disposed between adjacent scintillators.

23. (Canceled)

24. (Previously Presented) The method of claim 22 further comprising pixelating the substrate.

25. (Previously Presented) The method of claim 24 wherein the step of pixelating includes at least one of chemically and mechanically forming gaps in the substrate to define the plurality of scintillators.

26. (Original) The method of claim 25 wherein mechanically forming gaps includes dicing the substrate.

27. (Previously Presented) The method of claim 25 further comprising depositing reflective material into at least the gaps.

28. (Original) The method of claim 27 wherein the step of depositing includes the step of casting.

29. (Original) The method of claim 27 wherein the step of disposing a composite layer in the reflective layer includes the step of creating channels in the reflective material.

30. (Original) The method of claim 29 wherein the step of creating includes at least one of laser cutting, wire cutting, and etching.

31. (Original) The method of claim 29 further comprising the step of depositing composite material into the channels.

32. (Original) The method of claim 31 wherein the composite material includes a metal and a polymer.

33. (Original) The method of claim 31 wherein the step of depositing composite material into the channels includes casting.

34. (Currently Amended) A CT detector comprising:

a scintillator array having a plurality of scintillators;

a reflective top coat cast on an x-ray receptor surface of each of the plurality of scintillators; and

a reflector interstitially disposed between at least two adjacent scintillators, the reflector including a light absorption <u>composite</u> element disposed between a pair of reflective elements, wherein the light absorption <u>composite</u> element is configured to absorb x-rays.

35. (Currently Amended) The CT detector of claim 34 wherein the light absorption <u>composite</u> element is further configured to absorb approximately 50% of the x-ray photons across a gap between the at least two adjacent scintillators.

36. (Currently Amended) A CT detector comprising:

a scintillator array having a plurality of scintillators;

a reflective top coat cast on an x-ray receptor surface of each of the plurality of scintillators; and

a reflector interstitially disposed between at least two adjacent scintillators, the reflector including a light absorption element disposed between a pair of reflective elements wherein the light absorption element extends in length to an upper surface of the reflective top coat, and wherein the light absorption element is configured to reduce x-ray punch through.

37. (Previously Presented) A CT detector comprising:

a scintillator array having a plurality of scintillators;

a reflective top coat cast on an x-ray receptor surface of each of the plurality of scintillators; and

a reflector interstitially disposed between at least two adjacent scintillators, the reflector including a light absorption element disposed between a pair of reflective elements, wherein the light absorption element includes a high atomic number metal composite.

38. (Previously Presented) The CT detector of claim 37 wherein the metal composite includes a cured metal powder and low viscosity polymer combination.

39. (Previously Presented) The CT detector of claim 38 wherein the polymer includes polyurethane.

40. (Previously Presented) The CT detector of claim 37 wherein the metal composite includes at least one of tungsten, tantalum, and a metal powder with density greater than $16 g/cm^3$.

41. (Previously Presented) A CT detector comprising:

a scintillator array having a plurality of scintillators;

a reflective top coat cast on an x-ray receptor surface of each of the plurality of scintillators; and

a reflector interstitially disposed between at least two adjacent scintillators, the reflector including a light absorption element disposed between a pair of reflective elements, wherein the pair of reflective elements include TiO_2.

42. (Previously Presented) A CT system comprising:

a rotatable gantry having a bore centrally disposed therein;

a table movable fore and aft through the bore and configured to position a subject for CT data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject; and

a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject, the detector array including:

a scintillator array configured to illuminate upon reception of radiographic energy;

a reflector assembly disposed between adjacent scintillators of the scintillator array; and

wherein each reflector assembly includes a first light absorptive layer sandwiched between at least a pair of reflective layers; and

wherein the at least a pair of reflective layers includes TiO_2.

43. (Previously Presented) A CT system comprising:

a rotatable gantry having a bore centrally disposed therein;

a table movable fore and aft through the bore and configured to position a subject for CT data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject; and

a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject, the detector array including:

a scintillator array configured to illuminate upon reception of radiographic energy;

a reflector assembly disposed between adjacent scintillators of the scintillator array; and

wherein each reflector assembly includes a first layer comprising a high atomic number metal and a low viscosity polymer, the first layer sandwiched between at least a pair of reflective layers; and

wherein each reflective layer has a lateral thickness of approximately 15-90 μm and the composite layer has a lateral thickness of approximately 50-100 μm.

44. (Previously Presented) A CT system comprising:

a rotatable gantry having a bore centrally disposed therein;

a table movable fore and aft through the bore and configured to position a subject for CT data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject; and

a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject, the detector array including:

a scintillator array configured to illuminate upon reception of radiographic energy;

a reflector assembly disposed between adjacent scintillators of the scintillator array; and

wherein each reflector assembly includes a first layer sandwiched between at least a pair of reflective layers, the first layer including a low viscosity polymer comprising one of epoxy and polyurethane; and

wherein the reflector assembly is cast between adjacent scintillators.

45. (Previously Presented) The CT detector of claim 1 wherein the reflector interstitially disposed between at least two adjacent scintillators is a composite comprising a high atomic number metal and a low viscosity polymer.

46. (Previously Presented) The CT detector of claim 45 wherein the low viscosity polymer is one of epoxy and polyurethane.

47. (Previously Presented) The CT detector of claim 45 wherein the high atomic number metal is one of tungsten and tantalum.

48. (Previously Presented) The CT detector of claim 45 wherein the high atomic number metal has a density greater than 16 g/cm^3.

49. (Previously Presented) The CT system of claim 15 wherein the composite layer is an optical light absorber.

50. (Previously Presented) The CT system of claim 15 wherein the composite layer further comprises a low viscosity polymer.

51. (Previously Presented) The CT system of claim 50 wherein the low viscosity polymer is one of epoxy and polyurethane.

52. (Previously Presented) The CT system of claim 15 wherein the high-Z metal comprises one of tungsten and tantalum.